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TITLE: Impact of Contextual Factors on Prostate Cancer Risk and Outcomes

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14. ABSTRACT

During this reporting period, we have focused on harmonizing the interview data from the two studies, geocoding the addresses for the prostate cancer cases and controls, assembling the neighborhood data, and appending them to the cases and controls. To date we have completed the majority of task 1 as outlined in the Statement of Work. The subjects' residential addresses have been cleaned and subsequently geocoded at the USC GIS lab. The medical facilities data has been collected and merged with the case data as well as with the CCR data with the most updated follow-up information. The distance and travel time to facilities and distance buffers for determining distance to businesses has yet to be completed; however, we expect to finish this aspect and have our final multilevel dataset ready by the end of September.

15. SUBJECT TERMS
Race, ethnicity, prostate cancer, contextual factors, social environment, built environment, neighborhood

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INTRODUCTION

The objective of this study is to measure the independent and joint effect of individual-level factors and contextual-level social, built, medical access, and immigration environments on prostate cancer survival and risk within racial/ethnic groups and how these effects contribute to socioeconomic and racial/ethnic disparities. The specific aims are to: 1) quantify the independent and joint effects of individual-level education and contextual-level socioeconomic status (SES) on prostate cancer-specific and overall survival within racial/ethnic groups, and the extent to which behavioral and established prognostic factors contribute to these effects; 2) examine the extent to which individual-level education and contextual-level SES explain racial/ethnic variation in prostate cancer-specific and overall survival; 3) quantify the independent and joint effects of individual-level and contextual-level immigration and acculturation factors on prostate cancer-specific and overall survival in Hispanic men, and the extent to which behavior and prognostic factors contribute to these effects; and 4) explore the independent and joint effects of individual-level education and contextual-level SES on prostate cancer risk within racial/ethnic groups. The survival analyses (Aims 1-3) will utilize a proportional hazards regression framework with random effects ("frailty models") while the case-control analyses (Aim 4) will use multilevel unconditional logistic regression models utilizing individual-level and neighborhood-level information.

BODY

The original Statement of Work for the three-year study is as follows:

Task 1. Study and data set-up.
  1a.   Obtain IRB approvals (months 1-6)
  1b.   Determine interview data comparability and compute derived variables (months 1-6)
  1c.   Clean addresses of cases and controls (months 1-3)
  1d.   Transmit data to Cockburn USC lab for geocoding (months 4-6)
  1e.   Prepare contextual data (months 1-6)
  - prepare existing social and built environment datasets
  - collect business and destinations data
  - collect medical facilities data
    - collect OSHPD hospital utilization data, create bed size and ownership variables
    - compute % race/ethnicity in each hospital, based on registry data
  1f.   Append interview data to contextual data (months 7-9)
  1g.   Compute distance and travel time to facilities in GIS (months 10-12)
  1h.   Compute distance buffers in GIS for determining distance to businesses (months 10-12)
  1g.   Merge case data to California Cancer Registry (CCR) data to obtain most updated follow-up information (months 10-12)
Deliverables: Multilevel datasets for conducting analyses relevant to specific aims.

Task 2. Conduct analyses for Aim 1: survival analyses.
  2a.   Conduct analyses for Aims 1a & 1c (months 13-18)
  2b.   Conduct analyses for Aim 1b (months 19-24)
  2c.   Prepare and submit manuscript(s) describing results from Aim 1 (months 19-28)
Deliverables: Completed analyses and manuscript(s) for Specific Aim 1.

Task 3. Conduct analyses for Aim 2: case-control risk analyses.
  3a.   Conduct case-control analyses (months 29-32)
  3b.   Prepare and submit manuscript describing results from Aim 2 (months 33-36)
Deliverables: Completed analyses and manuscript for Specific Aim 2.

PROGRESS

To date we have completed the majority of task 1 as outlined in the above Statement of Work. IRB approval was received and we have merged the interview data between the San Francisco Bay Area and Los Angeles

studies. The subjects' residential addresses have been cleaned and subsequently geocoded at the USC GIS lab. The medical facilities data has been collected and merged with the case data as well as with the CCR data with the most updated follow-up information. The distance and travel time to facilities and distance buffers for determining distance to businesses has yet to be completed; however, we expect to finish this aspect and have our final multilevel dataset ready by the end of September. We have developed an analytic plan and obtained the necessary software and developed programs to conduct the multilevel case-control and survival analyses. We have also assembled the contextual variables and will be appending these to the cases and controls.

KEY RESEARCH ACCOMPLISHMENTS
- obtained IRB approvals
- compiled interview data from the two studies; harmonized interview data
- assembled neighborhood data – see Table 1
- cleaned and geocoded addresses of cases and controls using parcel-based method at the USC GIS lab
- obtained MLWin software for multilevel analysis; obtaining training on multilevel and geospatial analyses; developed analysis strategy

Table 1. Neighborhood data

Neighborhood Data	Year	Area-level	Data Source
1. Population density	2000	Census block-group, census tract	US Census Bureau
2. Rural/Urban Continuum	2000	Census-tract, county	USDA

3. Socioeconomic status
  a. Yost Index
  b. Public Health Disparities Geocoding project variables
	2000	Census block-group, census tract	US Census Bureau

4. Racial/ethnic composition	2000	Census block-group, census tract	US Census Bureau
5. Residential Segregation	1990, 2000	Census block-group, census tract	US Census Bureau
6. Housing	2000	Census block-group, census tract	US Census Bureau
7. Housing foreclosures	2002-2009	MSA	RAND via DataQuick News (2002-2009)
8. Residential Mobility	2000	Census block-group, census tract	US Census Bureau
9. Immigration/acculturation characteristics	2000	Census block-group, census tract	US Census Bureau

10. Health care resources
  a. Hospital Characteristics
  b. Physician & Surgeons
	(2001 OSHA)	Point source (long/lat)	CCR and 2001 OSHA

11. Businesses (Dunn & Bradstreet)	1990-2008	1600m buffer	Walls & Associates
12. Traffic density	2000	500m buffer	CalTrans
13. Commuting	2000	Census block-group, census tract	US Census Bureau
14. Street connectivity	2000	Census tract	RAND (CPHHD)
15. Crime	2000	City-level (at best)	RAND
16. Parks		Point source; 1600m buffer	
17. Farmers Markets	2010 (2008)	Point source (addresses, or intersections)	California Dept of Food and Ag (Healthy Network for CA)

REPORTABLE OUTCOMES

- Assembled data system of neighborhood variables (Table 1)

CONCLUSIONS

Due to problems with the USC GIS lab, we were somewhat delayed in the geocoding process. However, we have made good progress with regards to other aspects of task 1. We will be making up for lost time in year 2 and expect to adhere to the timeline within the statement of work.

REFERENCES

None.

APPENDICES

None.